

REMARKS/ARGUMENTS

Regarding the Specification Amendments

To provide basis for the requested amendment to Claim 12 regarding the abbreviation "Tg", the specification has been clarified to confirm that this abbreviation is referring to the "glass transition temperature" of the thermoplastic polyurethane. This amendment is clearly editorial in nature and adds no new matter since, in this context, it is well known to those of ordinary skill in this art that the abbreviation "Tg" refers to a glass transition temperature.

Regarding the Claim Amendments

The amendment to Claim 1 deleting the term "sheet" in the second line is editorial in nature and is intended to remove the 35 USC 112, second paragraph, rejection regarding the lack of antecedent basis for this term.

The amendment to Claim 1 inserting the words "consists essentially of" and deleting the words "film or sheet" in the third line is editorial in nature, adds no new matter and is intended to clarify that the compositional makeup of the plastic film is limited to the critical aromatic thermoplastic polyurethane and cannot contain other components that would affect its soil heating properties.

The amendment to Claim 2 and nearly all the claims deleting the words "or sheet" is editorial in nature, adds no new matter and is intended to remove the references in the claimed process to term "sheet" since, as commonly used in the context of plastics, "sheet" typically has a thickness of at least about 500 microns and is thicker than the "film" which is used in the claimed process and described in the application.

The amendments to Claims 2 through 4, 6 through 13 adding the term "aromatic" is responsive to the indefiniteness rejections under 35 USC section 112 and improve the clarity and consistency in referring to this critical component in the claims. It is clear that this amendment is editorial in nature and adds no new matter.

The amendments to Claims 3, 4, 6, 7, 8, 9, 10, 11 and 12 to clarify the certain specified features of the aromatic thermoplastic polyurethane are editorial in nature, add no new matter, and are intended to be responsive to the indefiniteness rejection under 35 USC section 112.

The amendment to Claim 12 to clarify the meaning of Tg is merely editorial in nature, adds no new matter and is responsive to the claim rejection under 35 USC section 112.

Regarding the 35 USC Section 112 Claim Rejections

Regarding the rejections under 35 USC section 112, it is believed that the amendments to the Claims, as mentioned above, are sufficient to remove all of these rejections.

Regarding the Prior Art Claim Rejections

Claims 1, 2, 5, 8-10, and 13 are rejected under 35 USC 102(b) as being anticipated by Yamana (EP 1,331,247) and Claim 11 under 35 USC 103(a) as obvious. Yamana discloses that certain blends of thermoplastic polyurethanes (TPUs) with ethylene vinyl alcohol or polyamide resins can provide improved gas barrier properties. Included in the long list of uses for these improved gas barrier, blend films are agricultural films. However, this use of a gas barrier film in an agricultural application provides no teaching nor suggestion of the Applicants' claimed process for solar soil heating using film made from the specified film resin consisting essentially of aromatic thermoplastic polyurethane.

As discussed in more detail in the present application, the claimed improved agricultural soil heating process is based upon the use of an aromatic thermoplastic polyurethane film that surprisingly provides improved heating and heat retention of the underlying soil. As alluded to in Yamana where the improved resin gas barrier properties are discussed, certain agricultural soil treatment processes use high barrier property films to retain fumigation treatment gases such as methyl bromide. However, the presently claimed solar soil heating processes is different, does not use a fumigation gas and instead, requires the unique light transmission and heat (IR radiation) retention of the specified film resin (consisting essentially of aromatic TPU) to raise the soil temperature to a sterilization level over a longer time period. The blend TPUs of Yamana contain gas barrier improving resin components of EVOH or polyamide polymers which, if still processable into films, would detract from the light transmission properties of the aromatic TPUs and are not guaranteed to provide the same IR radiation blocking properties of aromatic TPUs.


Therefore, it is clear that the Yamana teachings of agricultural films having gas barrier properties provided by TPU blends suggest only agricultural fumigation treatment films and provide no teaching or suggestion of the claimed agricultural soil heating process using a film consisting essentially of aromatic TPU. Moreover, with regard to agricultural films, there is no teaching or suggestion in Yamana that the TPU blend films would provide any

improvement in soil heating over the known agricultural films including those of polyethylene. In this regard, attention is directed to the examples of the present application where the aromatic TPU film was shown to provide surprisingly improved soil heating compared to the known polyethylene agricultural films.

In other rejections of the present claims additional references are cited relating to certain aspects of the thermoplastic polyurethane resins and films disclosed therein: USP 5,428,123 to Ward et al and USP 6,156,842 to Hoenig et al. However, none of these references can be seen to provide any further teaching or suggestion with regard to the claimed soil heating process using film prepared from resin consisting essentially of aromatic TPU. Ward discusses biocompatible polyurethane films with designed permeability that would appear to have very little in common with the gas barrier TPU blend resin films of Yamana. Based on Applicants' review of Hoenig, it is very difficult to determine what relationship, if any, the olefinic polymers disclosed therein have to the claimed solar soil heating process based on aromatic TPU resin films. It is therefore clear that neither of these references provide any additional teaching or suggestion with regard to the Applicants' claimed soil heating process.

In conclusion, therefore, as discussed above, is it Applicants' position that the claims, as amended, have been shown to overcome all of the above grounds for rejection and meet the definiteness requirements of 35 USC section 112, second paragraph, and the novelty and unobviousness requirements of 35 USC sections 102 and 103. Notice of Allowance is courteously requested. Please feel free to contact Applicants' undersigned representative if there are any questions or any further discussion would be helpful.

Respectfully submitted,


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